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National State of Professional Workforce Knowledge and Skills to Action Climate Change Adaptation Survey (2023) Final Report

Prepared for Natural Resources Canada

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Canada

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March 2024

This public opinion research report presents the results of an online survey and online communities conducted by Earnscliffe Strategy Group on behalf of Natural Resources Canada. The quantitative research was conducted from April 21, 2023, to June 30, 2023, and the qualitative research was conducted from September 12 to 15, 2023.

Cette publication est aussi disponible en français sous le titre : Sondage national sur l'état des connaissances et des compétences de la main-d'œuvre professionnelle en matière d'adaptation aux changements climatiques (2023)

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Executive Summary

Earnscliffe Strategy Group (Earnscliffe) is pleased to present this report to Natural Resources Canada (NRCan) summarizing the results of quantitative and qualitative research undertaken to better understand the extent to which targeted professionals are equipped with the competencies to integrate future climate change adaptation considerations into their practice.

Background

The National Adaptation Strategy identifies, under the Economy and Workers system, that building climate-resilient communities and economies requires a skilled workforce. As the need to adapt to the impacts of climate change accelerates, there is a growing demand for a professional workforce – particularly among professionals who have a key role to play in climate change adaptation, including engineers, planners, accountants, and landscape architects – that has the necessary competencies (knowledge and skills) to incorporate future climate change considerations into their practice. However, this workforce needs to be further developed and national research documenting this gap in the Canadian labour market is limited.

Research Objectives

The objectives of this research were to document the extent to which the targeted professionals (engineers, planners, accountants and landscape architects) are equipped with the competencies needed to include future climate change considerations into their practice, to highlight training gaps and opportunities, and to inform where future efforts for building a skilled workforce should be focused.

More specifically, this study was designed to:

- inform the design and implementation of climate change adaptation programming as it relates to accelerating the development of a skilled workforce;
- identify where professionals in Canada stand in terms of learning and applying climate change adaptation skills in their work/practice (characterize the labour market gap);
- set a national baseline to monitor changes in the Canadian workforce over time.

The findings of this report help to better understand the adaptation labour market context, current barriers, and challenges, and help target resources to create a skilled Canadian workforce that is equitable, diverse, inclusive, and that is equipped to act on adaptation in all sectors of the economy, including natural resource sectors. The goal is contributing to a Canada that is more resilient to climate change.

Methodological Approach

To meet the research objectives, Earnscliffe conducted a two-phased research program involving both quantitative and qualitative research.

For the quantitative phase, we conducted an online survey in collaboration with our quantitative subcontractor, Leger. The survey was conducted online with unique survey links provided for each national professional association in both English and French. The total sample was 693 individuals, including 84 accountants, 161 engineers, 89 landscape architects, and 359 planners. The survey was conducted between April 21 and June 30, 2023. The average length of each interview was 24 minutes. As this was a non-probability sample, no margin of error can be calculated.

The qualitative phase was comprised of seven online communities, each containing up to ten participants. Each profession had an English and a French community – the one exception being French-speaking landscape architects and planners, which, due to limited participants, were combined into one community. The purpose of the qualitative research was to gather deeper insights from specific perspectives that may not have been explored in detail in the survey. The online communities were held between September 12 and 15, 2023.

When considering the results of this research, and in particular, the results of the quantitative phase of, it is important to bear in mind that the sampling method was unusual in some important ways.

First, as per the statement of work, the sample was not simply people who were in each of these professions, but more specifically, people who were members of one of four professional associations:

- Engineers Canada,
- Canadian institute of Planners (CIP),
- Chartered Professional Accountants Canada (CPA), or
- Canadian Society of Landscape Architects (CSLA).

Second, due to the cost and feasibility challenges of finding sufficient numbers of members of each of these professional associations through random sampling or using opt-in panels, NRCan secured the agreement of each of the associations to have their members invited to participate in the study.

Third, since it was not possible for the associations to provide either NRCan or Earnscliffe with membership lists from which to draw a random probability sample, the promotion and distribution of the survey was undertaken by each association themselves and independently. As a result, while Earnscliffe assisted with guidance and invitation letters and furnished links to the study, there was no oversight by Earnscliffe of the sampling process itself.

Fourth, because we could not associate any specific invitation with a specific respondent, the links provided in the invitations were the same for all and could theoretically have been shared with others, including those not in the profession and multiple responses were theoretically possible.

Fifth, knowing the relative membership size of each association, the level of participation from each membership body varied widely. We have no evidence for why this occurred and there are numerous plausible explanations including delivery problems such as emails not being received, email addresses being inaccurate, membership disinterest in such communications, membership disinterest in participation, among many other possibilities that may not be mutually exclusive.

As a result of this approach to the data collection, we have far less evidence of sample coverage, open rates, non-response, and representativeness than would normally be the case.

In addition, one other important finding should be borne in mind when reviewing the results of accountants as compared to members of the other three professional associations. Responses provided in the online communities demonstrated that while landscape architects, engineers and planners almost always were able to discuss how a changing climate relates to and impacts the work they do, accountants were far less likely to do so, or to interpret “climate change adaptation” in the same way. The accountant sample was quite diverse and demonstrated that the profession includes people who are often working in roles that do not require an in-depth understanding of the impacts of climate change on the business(es) they serve, the cost-benefit analyses of climate change adaptation approaches or what a climate change adaptation approach to their work would be. In the future, it will likely be more valuable to further refine the sample of accountants to home in exclusively on those for whom analyzing or advising on such business impacts and options is part of their role.

Key findings

For the purpose of this report, wherever findings from the online communities are presented, it is important to note that qualitative research is a form of scientific, social, policy, and public opinion research. Qualitative research is designed to elicit the full range of ideas, attitudes, experiences, and opinions of a selected sample of participants on a defined topic. Because of the small numbers involved, the participants are not representative statistically of the larger population from which they are drawn, and findings cannot reliably be generalized beyond their number.

The key findings of this research are presented below separately for each of the four professional samples: accountants, engineers, landscape architects, and planners.

Before getting into each sample, however, there are some common threads and overarching themes worth noting (albeit with the important caveat that, due to limited sample sizes, these trends are suggestive instead of indicative).

With that being said, the findings of this study suggest that there is a widespread acknowledgement that climate change is here, that it is important, and that more needs to be done. The foundation for this sense of importance is a high level of self-assessed knowledge of climate change, as well as what climate change adaptation looks like in a professional context, among respondents and participants.

The second broad trend was the perception among professionals that there is a lack of climate change adaptation knowledge among professional contacts and that this posed a barrier to integrating future climate change adaption considerations into their work, or even communicating about them. Despite these barriers, a majority in most professions – excepting accountants – believe that climate change adaptation practices should influence their professional work.

This is not meant to suggest that there is strong alignment on all the topics broached in this study. There are important differentiations between and within professions, some of which were already noted above. By reading through the following detailed findings, and the qualitative

sections in particular, it becomes clear that each profession offers its own unique lens on this topic.

Accountants

Importance and Awareness of Climate Change and its Impacts

- Almost a third (30%) of accountants say that climate change is the most important issue facing Canada. Far fewer see climate change as the most important issue facing their work (12%) or their profession (10%).

- A quarter (23%) of accountants say they understand climate change and its impacts on accounting very well.

    - A majority of the participants in the online communities did not interpret climate change adaptation through the lens of their profession. Instead, the community focused on larger discussions of changes that could be made across society or what they could do personally. Notably, the understanding of what climate change adaptation means in the context of their profession seems limited.

- An equal number of accountants say they consider the impacts of climate change in their current professional practice and decisions all the time (14%) as those who say they never consider them (14%).

    - The qualitative study revealed that many misinterpreted what this question meant and were referring to personal actions (e.g., not printing out documents) as opposed to adaptation actions in their professional context.

Professional Adaptation Competencies

- A quarter (23%) of accountants say they understand climate change and its impacts very well, while 10% say they feel very well equipped with the competencies to apply climate change adaptation tools and information to their work, or to communicate the business case for adaptation measures to their clients or other stakeholders.

- Among those who indicated they had at least some training in climate change adaptation, just over a quarter (28%) indicated receiving this training through professional development, while only a minority noted doing so during their postsecondary studies (8%). This was echoed in the online communities, where it was considered peripheral at best.

- A vast majority of accountants who participated in professional development on climate change adaptation say they feel at least a little more equipped (30%), if not more (60%) or much more equipped (5%) after the training they received.

    - Almost no accountants mentioned pursuing any form of continuing education specifically on this subject in the online communities. However, a few did bring up broader environmental, social, and governance (ESG) training.

- When asked of all accountants, the top three climate change adaptation competencies areas they note as not currently being addressed in a meaningful way by the profession as a whole are: climate data (38%), climate change impacts (37%), and climate finance (37%).

- Regarding the barriers to gaining additional climate change adaptation competencies, a majority of accountants (51%) cite a lack of time and competing priorities – a finding echoed in the online communities.

Resources on Climate Change and its Impacts

- While just over half (56%) of accountants say they are at least somewhat likely, if not very likely, to seek specific information on climate change adaptation in the next 12 months, the same proportion (56%) of accountants say they do not know where to find information or resources on climate change relevant to their practice.

    - In the online communities, some indicated general knowledge sources about climate change as opposed to professionally relevant adaptation tools. Most expressed surprise that tools were available and wondered why they were not promoted better.

- In terms of how to help better equip accountants, participants in the online communities emphasized that case studies and concrete examples would help them conceptualize how to integrate future climate change adaptation into their practice.

Contextualizing Climate Change Adaptation Competencies

- At a quarter (23%), accountants are more likely to say that their **specific work** has no impact on adapting to and mitigating the impacts of climate change than they are to say that it can have a significant impact in doing so (14%).

    - In the online communities, participants offered very mixed responses regarding their specific work, with some saying there was no room for them to make an impact. In contrast, others saw themselves as exceptionally well placed to have an impact – many indicated that it depended on the type of accountant they were or the industry in which they worked.

- Accountants are more optimistic about their **profession as a whole**, with 30% saying that their profession can have a significant impact on adapting to and mitigating the impacts of climate change.

    - A few participants focused on what attributes make accounting well suited to making the changes required for adapting to climate change, notably the integrity and reputation the role brings, as well as the skills to evaluate complex situations such as risk management.

Engineers

Importance and Awareness of Climate Change and its Impacts

- Over half of engineers say that climate change is an important issue, but not the most important one, in all areas tested, with virtually no one saying it is not an issue at all. A third (34%) of engineers say it is the most important issue facing their profession.

- A vast majority (83%) of engineers say climate change will have a moderate, if not significant, impact on their profession.

- When it comes to climate change and its impacts as they pertain to a respondent's professional practice, three quarters say they understand it well or very well (75%) – a similar number (72%) say the same about climate change adaptation.

    - When asked how well they felt they understood what climate change adaptation is, a vast majority of engineers responded that they felt like they had a good, if not necessarily comprehensive, understanding. A few participants noted that climate change adaptation measures were a natural extension of having to work in what was already an extreme range of climatic conditions.

- Two-thirds of engineers (66%) say that they consider the impacts of climate change in their professional practice and decisions usually or all the time. In comparison, a quarter (24%) say climate change adaptation practices should ultimately influence their work. This finding was mirrored in the qualitative research.

- Several engineers noted that clients and employers were often not receptive to the idea of integrating adaptation measures into their practice. However, some participants additionally highlighted that, even when this was not a client priority, climate change adaptation measures still served fundamental obligations to the client to protect their personnel or assets and were therefore incorporated.

        - Participants additionally identified the differing levels of knowledge about climate change adaptation among employers and clients as a barrier in this regard.

Professional Adaptation Competencies

- If a majority of engineers note that they are considering the impacts of climate change on their professional practice usually or all the time, the number who say they feel well, or very well, equipped with the required competencies to do so is much lower (44%).

- Most engineers (79%) say they acquired their climate change adaptation competencies through self-learning, followed by professional development (58%). Only 29% say they acquired these during their post-secondary education.

- When asked if these topics should be covered in post-secondary education, most participants agreed regardless of whether they themselves had benefited from this education.

- The most popular topics covered through professional development were: climate change impacts (76%), climate data (72%), and climate science (66%).

- The areas where it was indicated by respondents that more training could be helpful were: regulations, codes, and standards (40%); social impacts (40%); climate policy (38%); and risk assessment and management (38%).

    - Many engineers in the online communities indicated they would welcome training on most, if not all, subjects listed.

- A lack of time and competing priorities (68%) is the top barrier selected by engineers to gaining additional competencies in climate change adaptation. This was followed by a lack of funding (42%). All these concerns were echoed in the online communities.

Resources on Climate Change and its Impacts

- Three-quarters (77%) of engineers say they are at least somewhat, if not very, likely to seek specific information on climate change adaptation related to their profession in the next 12 months. Almost two-thirds (64%) indicate they know where to find such information.

    - In the online communities, it was clear that many engineers were well versed in the resources available to them and that were relevant to their practice. However, this was not universally the case, with a small minority indicating that they simply reverted to internet searches as required.

- While many engineers (41%) say they do not rely on any of the seven federal sources regarding climate change that were tested, the one most likely to be selected was NRCan's Climate Change Adaptation "Tools and Resources" page at 26%.

    - When prompted with data about the availability of federal resources, a majority of participants expressed surprise that they existed or acknowledged that they had not learned about them until recently. Many suggested that these resources should be better publicized.

Contextualizing Climate Change Adaptation Competencies

- A vast majority of engineers (86%) believe that their **specific work** can have at least a moderate impact on adapting to and mitigating the impacts of climate change.

    - In the online communities, some indicated through their comments that they felt as if their work was too small to be impactful – especially when others in the community talked about the large, systems levels projects they were working on.

- Three-quarters (74%) of engineers think that their **profession as a whole** can have a significant impact on adapting to and mitigating the impacts of climate change.

    - Many in the online communities felt that the potential of their profession to have an impact on adaptation and mitigation was not yet realized or was contingent on other factors, notably further education and movement in the regulatory and policy realms.

Landscape Architects

Importance and Awareness of Climate Change and its Impacts

- Almost half (47%) of landscape architects say that climate change is the most important issue facing their profession, while just over two-in-five (44%) say the same of Canada.

- Four-in-five (80%) landscape architects say that they understand climate change and its impacts as it pertains to their professional practice, either well or very well. Almost the same number (79%) say they understand well, or very well, what climate change adaptation is.

    - In the online communities, there were multiple interpretations of the definition of climate change adaptation discussed, and many noted that this depended on the specialization in question.

- A vast majority (85%) of landscape architects say that climate change adaptation practices should influence their work a great deal, if not completely.

- Landscape architects rate their own knowledge of climate change adaptation far higher than those they interact with professionally.

    - Almost all participants agreed with this assessment but offered important caveats to it, including the positionality of the professional in question and who they had to engage with (e.g., how wealthy their clients were and what specific challenges they were facing).

Professional Adaptation Competencies

- Only 17% of landscape architects say they feel very well equipped with the competencies to apply climate change adaptation tools and information to their work.

- When it comes to how professional climate change adaptation competencies were developed, four-in-five (79%) landscape architects say that it came through self-learning. In comparison, another three quarters (75%) say that it resulted from professional development. Two-in-five (38%) note having learned about it in postsecondary studies.

    - All participants in the online communities suggested that there was room to incorporate more of this training into postsecondary curriculums, with several mentioning how beneficial a core survey course would be in this regard for setting a base level of knowledge.

- Three-quarters (73%) of landscape architects note a moderate or significant impact on their professional practice after completing professional development.

- More training is desired in climate finance (47%); climate law (42%); regulations, codes, and standards (38%); and asset management (38%).

    - Participants in the online communities highlighted the need for more training on how to make the most of interdisciplinary collaboration and communicating with clients about why some of these climate adaptation interventions are necessary.

- The top barriers to further gaining competencies in climate change adaptation cited by landscape architects are a lack of time and competing priorities (73%), followed by a lack of funding (52%).

    - One participant also brought up a lack of what they described as courage on the part of employers and clients – a sentiment echoed by other commenters in the online community.

Resources on Climate Change and its Impacts

- A vast majority (88%) of landscape architects say they are at least somewhat likely to seek out information on climate change adaptation as it relates to their practice in the next 12 months. Over two-thirds (69%) indicate they know where to find these resources.

- While almost half (48%) of landscape architects say they do not rely on any of the seven federal resources regarding climate change that were tested, the one most likely to be selected was NRCan's Climate Change Adaptation "Tools and Resources" page selected by 22% of landscape architects.

    - A majority of landscape architects in the online communities confirmed that there is a lack of awareness of these resources and suggested that more could be done, including through promotion by their professional association.

    - Many participants in the online communities also expressed frustration with resources that were behind paywalls.

Contextualizing Climate Change Adaptation Competencies

- Four-in-five (80%) landscape architects think that their **specific work** can have at least a moderate impact on adapting to and mitigating climate change, if not a significant one (45%).

    - Many participants in the online communities noted that their propensity to be trained as generalists made them uniquely suited to seeing the bigger picture and how the pieces all fit together.

- When extrapolated beyond the individual landscape architect to the **profession as a whole**, the number who say that it can have at least a moderate impact on adapting to and mitigating climate change rises to 92%, with two-thirds (65%) saying that it can have a significant impact.

    - A majority of participants in the online communities saw tremendous potential for landscape architects to make a positive impact. Outside project-specific impacts, many participants focused on how they saw landscape architecture as a meeting place of different perspectives, which allowed a more holistic view than might be afforded other professions.

Planners

Importance and Awareness of Climate Change and its Impacts

- A third (32%) of planners say that climate change is **Canada's** most important issue, with another two-in-five (22%) saying the same regarding their **profession**.

- On the question of how well planners understand climate change and its impacts as it pertains to their professional practice, most report that they understand it well or very well (77%) – this mirrors the 80% who say they understand what climate change adaptation is well, or very well.

    - When asked about how well they understood climate change adaptation, many participants in the online community indicated at least a base level understanding but were quick to caveat their answers. Many highlighted the immense complexity of the issue, which made it difficult to have any comprehensive grasp of the subject.

- Most planners (83%) think that climate change adaptation practices should influence their professional work either a great deal, or completely. This was stressed as a key in the online communities, with a few even linking it to the very core of their role as planners.

    - In terms of barriers to implementing these considerations in their work, participants noted funding barriers, a lack of political will, as well as the need for better education, the need for improved public awareness, and the need for strong regulations.

Professional Adaptation Competencies

- While 83% of planners believe that climate change adaptation should influence their professional practice either a great deal or completely, the number of planners who say they feel well, or very well, equipped with the required competencies to apply climate change adaptation tools in their practice is much lower (37%).

- Just under three-quarters (72%) of planners say they have received professional development training on climate change adaptation. Almost half (45%) also report receiving training during their postsecondary studies.

    - There was a significant divide among participants in the online community depending on when their post-secondary studies were completed, with those attaining their degrees over twenty years ago signalling that they had little to no exposure to climate change related topics.

- While exposure to climate change adaptation was not ubiquitous across postsecondary educational experiences, the desire for it to be included in future curricula was.

- When presented with a list of topic areas and asked where they would like to receive more education, half (52%) of planners say they would like it on risk and vulnerability assessment and management – up from 40% who say the same topic is currently being under-addressed in the profession.

- As with the other professions, a lack of time and competing priorities (69%), as well as a lack of funding (47%) are the top barriers to gaining additional climate competencies.

    - Some participants in the online community mentioned that no matter what was done to better equip planners, it would not matter if larger systemic interventions were not made to enable them to do their work.

Resources on Climate Change and its Impacts

- Most (83%) planners say they are at least somewhat likely to seek information on climate change adaptation as it relates to their practice in the next 12 months, with almost half (47%) saying they are very likely to do so. Two-thirds (67%) say they know where to find these resources.

    - This was echoed in the online communities, where the planning participants appeared to be the best resourced, or at least most able to draw on a wide range of professionally relevant material.

- Despite this, many planners (42%) say they do not rely on any of the seven federal sources regarding climate change that were tested. The one most likely to be selected was NRCan's Climate Change Adaptation "Tools and Resources" page (selected by 25%).

    - Echoing other professions, many planners in the online communities were surprised by the resources available through the federal government and NRCan. Suggestions for improving the visibility of these resources included promoting them through relevant professional organizations and centralizing them in one easy-to-access place.

    - When asked what additional information or resources would be helpful, a few participants brought the conversation back to funding, noting that it did not matter what resources they had access to if they did not have the funding to implement their projects.

Contextualizing Climate Change Adaptation Competencies

- Almost all planners agree that they can have at least a minor impact on adapting to and mitigating the impacts of climate change through their **specific work**, with a third (32%) saying they could have a significant impact.

    - Many participants included a caveat to this answer in the online communities. Some indicated that it depended on the project in question, what the local political priorities were, to what extent funding was available, or, notably, if anybody was enforcing existing regulations.

- Virtually all planners say that their **profession as a whole** can have an impact on adapting to and mitigating the impacts of climate change, with two-thirds (65%) saying that it can have a significant impact.

- When the conversation in the online communities expanded out to the level of the profession, less caveats were offered, and planners saw great potential for their work to have an impact across the board.

The subsequent sections of this report provide more detailed analysis of the findings.

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I hereby certify as a representative of Earnscliffe Strategy Group that the final deliverables fully comply with the Government of Canada political neutrality requirements outlined in the Communications Policy of the Government of Canada and Procedures for Planning and Contracting Public Opinion Research. Specifically, the deliverables do not include information on electoral voting intentions, political party preferences, standings with the electorate, or ratings of the performance of a political party or its leaders.

Signed: Date: December 30, 2023

Doug Anderson
Principal, Earnscliffe